

Integrated Functional Appraisal (IFA)

Facilities Division

September 30, 2005



IFA Team Members:

Carole Fried, IFA Team Leader – EH&S
Ross Fisher, Safety Engineer – EH&S
Jim Murphy, Electrical Shop Supervisor – Facilities
Warren Yip, DOE Berkeley Site Office
Rob Connelly, Industrial Hygienist – EH&S
Betsy MacGowan, Industrial Hygienist – EH&S
Wendy Corr, RN -Health Services
Gary Piermattei, Fire Marshal – EH&S
Patrick Thorson, Air Quality Engineer – EH&S
Mark Lasartemay, Waste Management Specialist, EH&S
Janice Sexson, Facilities Safety Coordinator

Executive Summary

The Environment, Health and Safety Division conducted an Integrated Functional Appraisal of the Facilities Division during May and June 2005. The IFA is a key component of the Berkeley Lab's Integrated Safety Management Program and forms one of three tiers of the Laboratory's Self-Assessment Program. The role of the IFA is to provide a technical environment, safety and health review of the Facilities Division to ensure that workplace environment, health, and safety programs are providing adequate protection and assure that hazards are managed effectively.

IFA team members were selected based on their expertise in the following fields: industrial hygiene, industrial safety, ergonomics, fire safety, electrical safety, and environmental and waste management. The team held several meetings which included an opening/planning meeting and inspections. This year the IFA Team focused on OSHA compliance and electrical safety. In addition, the scope included a review of Bay Area Air Quality Management District (BAAQMD) permitted emergency generators and Facilities-managed Satellite Accumulation Areas (SAAs) and Waste Accumulation Areas (WAAs). The team spent 22 hours inspecting Facilities-owned spaces in addition to time spent inspecting all SAAs, WAAs and emergency generators.

The results of the IFA inspections were divided into "Findings" which are deficiencies or violations of OSHA regulations, LBNL policies, or Work Smart Standard and "Recommendations" which though not deficiencies, represent opportunities for improvement.

Approximately two hundred findings were noted of which thirty-two were electrical in nature. Additional observed finding trends included; insufficient guarding around HVAC equipment; broken or improperly stored PPE; sanitary issues in the cafeteria; and debris left behind by contractors in mechanical rooms. Thirty-seven recommendations were also noted. The Division needs to continue to emphasize OSHA compliance. In order to help understand the nature of the violation, the specific regulatory references are noted for each deficiency in Appendix B Environment, Health and Safety Technical Inspection Findings.

The review indicates that Facilities Division is in full compliance with BAAQMD issued permits for twenty-two emergency generators. Recommendations were made to ensure that the Division remains in compliance as new regulatory conditions for generators come in effect.

The inspection of Facilities' waste areas revealed one SAA that was not in compliance and an NCAR (Non-conformance, Non-compliance Action Report) was issued. The waste, broken fluorescent tubes, was stored for greater than 360 days which is a regulatory violation. Corrective actions to prevent re-occurrence of this violation have been implemented.

The IFA Team observed several "Noteworthy" practices during the inspection. Many of these practices were in the areas of ergonomics and materials handling where the majority of Facilities accidents occur. The IFA team commends the Division for focusing on and showing initiative in these areas. Improvements in housekeeping and material storage were also observed in many areas.

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1 Introduction

The Environment, Health, and Safety (EHS) Division of Lawrence Berkeley National Laboratory (LBNL) conducted an Integrated Functional Appraisal (IFA) of the Facilities Division during May-June 2005. The IFA is a key component of LBNL's Integrated Safety Management (ISM) system and forms one of the three tiers (along with Management of Environment, Safety, and Health [MESH] reviews and self-assessments) of the Lab's self-assessment program. The EHS Division conducts an IFA for each laboratory division every three years. The Facilities Division's last IFA was performed in 2002.

1.1 IFA Purpose

The purpose of the 2005 IFA of the Facilities Division was to conduct an EHS technical review of the division's work activities and operations.

1.2 Scope

The scope of this year's IFA was to:

- Inspect the majority of Facilities owned spaces (shops, mechanical / electrical rooms, roof tops, etc.) for OSHA, and PUB 3000 compliance
- Review compliance with local Bay Area Air Quality Management District (BAAQMD) air permits for diesel emitting sources
- Inspect all Facilities-owned waste collection points, SAA's, and WAA's.

1.3 Compliance Emphasis

As a result of the number of findings from the January 2004 OSHA compliance inspection of LBNL, this IFA focused on OSHA compliance. Deficiencies identified were cross referenced to OSHA regulations for a greater understanding of the finding. A heightened emphasis was also placed on electrical safety compliance.

2 Appraisal Process

2.1 Team

2.1.1 Selection

Team members were selected based on their expertise in the fields of: industrial hygiene, industrial safety, ergonomics, fire safety, electrical safety, environmental and waste management, and occupational / public

health. As experts in these fields, team members have knowledge of and experience in identifying the primary hazards of the Facilities Division. Team members included:

- Electrical safety: - Jim Murphy
- Environmental protection: -Pat Thorson
- Fire protection: - Gary Piermattei
- Industrial hygiene: - Carole Fried, Betsy MacGowan & Rob Connelly
- Occupational and public health: - Wendy Corr
- Occupational safety: - Ross Fisher
- Waste management: - Mark Lasartemay

2.1.2 *Member roles and responsibilities*

All team members were responsible for reporting any EHS concern they identified, regardless of their field of expertise. Subject matter experts were asked to review the applicable databases and Facilities Division authorizations with respect to their field of expertise. The team leader had the additional responsibilities of coordinating meetings, communicating results to Facilities Division staff, and preparing reports.

2.1.3 *Meetings*

The team held several meetings, which included a planning session, followed by nine inspections of Facilities spaces. The team spent twenty-two (22) hours in the field conducting formal inspections.

The planning session was held on May 11th with nine team members in attendance including Janice Sexson, the Facilities Division Safety Coordinator. Warren Yip, the Facilities DOE Berkeley Site Office representative was also in attendance.

Nine inspections were conducted between May 23rd and June 29th, 2005. For a list of inspection locations see Appendix A.

A discussion of the findings was held with Guy Bear, Facilities Deputy Director on September 28th.

2.1.4 *Document and database reviews*

In preparation for the IFA, the EHS team reviewed three years of Facilities accident (recordable and first aid injuries) information obtained from the SAAR database. A review of waste (WAA, SAA) permits and

the HEAR database was also conducted. The Division has no radiological work authorizations (RWA's) or Activity Hazard Documents (AHD's).

2.1.5 *Identification of Facility-level operations*

A review was conducted on air permits issued by BAAQMD for emergency generators.

2.1.6 *Identification of Medium and High Hazard spaces and operations*

During the planning meeting, inspection strategies were discussed. All Facilities owned spaces were reviewed and areas were selected and prioritized based on their potential hazards, frequency of past inspections and previously identified health and safety issues based on the OSHA inspection, Cross-Shop Inspections, Executive Safety Walkthroughs, electrical self-assessments, etc.

2.1.7 *Identification of line management authorized work*

Facilities line management is responsible to assess the hazards associated with each work order issued or task performed by Division employees.

2.1.8 *Identification of line management authorized work - Contractors*

Facilities line management is responsible to ensure that contractors have:

- applied ISM principles
- identified the EHS hazards associated with the task to be performed
- planned their work and control strategies
- executed their work in accordance with their submitted and Facilities approved safety plan

2.1.9 *Scheduling of space reviews/inspections*

The IFA Team Leader scheduled inspections based on the areas prioritized by the IFA Team.

2.2 Space reviews

The IFA team inspected the scheduled spaces for hazards, paying particular attention to OSHA compliance. Whenever possible, issues

were resolved on the spot. IFA team members noted all issues identified, whether resolved or not, on inspection sheets. The team leader later compiled the results submitted on inspection sheets and sent the results for review to the team. Facilities supervisors accompanied the IFA team when feasible. Many of the spaces inspected were mechanical rooms that are not typically occupied.

3 Results

3.1 Categories

The results from the nine inspections were categorized as either findings, observations, or noteworthy practices.

3.1.1 Findings

Practices or conditions that do not comply with OSHA regulations, building codes, LBNL policy, or the Work Smart Standards and are considered deficiencies. Findings must be corrected.

3.1.2 Recommendations/Observations

Practices and conditions that are not necessarily non-compliant with OSHA regulations, and LBNL policies and procedures as observed, but that reflect opportunities for improvement or that with some additional level of effort could achieve Best Practices status.

3.1.3 Noteworthy Practices

Practices and conditions that demonstrate exemplary initiative and effort, that go beyond compliance, that contribute additional EHS value to the Lab, and that might be shared as Best Practices with others.

3.2 Documentation-Photographs

Photographs were used to document many of the inspection results. Where available, photograph reference numbers have been included in the Inspection Results Tables in Appendices Appendix B, Appendix C, and Appendix D. All of the photographs can be found in Appendix E. In addition, a CD of the photos was given to the Facilities Division Safety Coordinator.

3.3 Summary of Technical Environment, Safety, and Health Inspection Results

The inspection findings (deficiencies) along with recommendations (as applicable) can be found in Appendix B.

An overview of the finding trends is noted below:

- Many electrical deficiencies (32) were noted, despite numerous previous electrical inspections
- Machine guarding of fans and other HVAC components, is incomplete and openings wide enough to allow fingers and / or hands to pass still exist
- Several issues regarding sanitary conditions in the cafeteria were observed
- Instances of broken or improperly stored personal protection equipment (PPE) were found
- Construction debris left behind by contractors was found in several mechanical rooms.

3.4 Facility Authorizations

3.4.1 SADs, FSADS

The Facilities Division does not have any Safety Analysis Documents.

3.4.2 Other BAAQMD, EPA, EBMUD Permits

The Facilities Division operates under many permits issued by the Bay Area Air Quality Management District. Activities under Facilities operations that are permitted by BAAQMD presently include the paint spray booth in B76, two fuel dispensing stations (also at B76), and numerous emergency generators located around the site.

3.4.3 Status of the Authorizations

During this IFA, the EHS Environmental Protection Specialist reviewed all 22 BAAQMD permitted emergency generators in order to verify that they were in compliance with the conditions specified in their permits. Additional generator specific information was also collected in anticipation of a new regulatory requirement that will further restrict the operation time of diesel particulate-producing stationary generators in non-emergency use situations.

Twenty of the twenty-two permitted generators were visited during May or June 2005. The recordkeeping logbooks were reviewed for accuracy and completeness. The two generators that were not reviewed included one at the Molecular Foundry which is permitted but not currently on line and one that formally served B66 but is off site being refurbished (the new replacement at B66 was reviewed).

The inspection results indicated that all permitted generators are operating well within permit limits. It also appears that all generators affected by the pending regulatory change will meet those lower operating requirements assuming that current maintenance and testing schedules remain unchanged, and non-emergency use is limited..

These newer more restrictive operating limits create a lower margin of operational error for Facilities. Two recommendations to ensure continued permit compliance include:

- Developing a mechanism for Facilities to more frequently review the running hourly total for non-emergency generator use to ensure that the permitted rolling year limit is not exceeded.
- Ensuring that operators designate in the log book when a generator is actually used under qualifying “emergency use” conditions. The operating times in emergency conditions are not counted against the yearly allowable permitted running limit. These emergency use conditions should be well documented in the log book.

Other BAAQMD operating permits were not reviewed during this IFA.

3.5 Formal Work Authorizations

3.5.1 *Technical occupational safety and health issues review*

Facilities Division has no AHDs or RWAs.

The Division is responsible for six (6) SAAs and three (3) WAAs, one of which is jointly managed with the EHS Division.

A waste violation at the B31 Lighting Shop SAA resulting in an NCAR (Non Conformance, Non Compliance Action Report) was however discovered during the inspections. The SAA is located in a locked storage trailer that is used primarily for Universal Waste storage (intact fluorescent lamps). The SAA contained broken fluorescent tubes. All Facilities waste storage areas are inspected monthly by the Division Safety Coordinator and quarterly by the EHS Waste Management Specialist. The sign outside the trailer indicates that the unit is for Universal Waste and the unit is locked. Since only the lighting crew had a key to this storage trailer, it was not routinely inspected by the Safety Coordinator and Waste Management Specialist.

During the inspection, it was discovered that the waste in the SAA had been stored for over 360 days in violation of regulatory requirements. As corrective action, the Lighting Crew Supervisor met with the EHS Waste Management Representative, the Division Safety Coordinator and EHS Liaison in order to clarify the regulatory requirements for Universal vs.

Hazardous Waste. The Safety Coordinator now has a key to the trailer and will perform monthly inspections.

3.5.2 Validation of Hazard Identification Database (HEAR or equivalent)

The Facilities Division Safety Coordinator annually reviews the HEAR database. Due to the nature of Facilities operations, the hazards associated with the Facilities'-owned spaces that are tracked in HEAR, do not frequently change. Facilities employees greatest use of HEAR is as a tool to identify potential hazards when they are required to work in laboratory spaces owned by other divisions.

3.5.3 Work Smart Standards Envelope

The IFA team did not specifically review Berkeley Lab's work smart standards for their applicability to new or existing Facilities Division work.

4 Recommendations

Thirty-two (32) recommendations were made by the IFA Team (see Appendix C). Though not regulatory violations, these recommendations do represent opportunities for improvement that can ultimately lead to a reduction in injuries or potentially hazardous events.

OSHA regulations represent the minimum in safety and health standards. Best in class performance can not be achieved by solely applying OSHA regulations. The Facilities Division is urged to review the recommendations and implement as many as possible.

5 Corrective Action Tracking and Follow-up

The findings listed in Appendix B are deficiencies that require corrective actions. It is strongly suggested that these findings be entered into the LCATS tracking system for follow up. Recommendations (Appendix C) that the Facilities Division intends to implement should also be tracked in LCATS.

6 Noteworthy Practices

The IFA Team noted several areas where the Facilities Division has excelled in implementing a best practices approach. These practices are described in detail in Appendix D. A summary is provided below:

- Ergonomic improvements to B79 Metals Storage Facility, B78 Central Receiving and B31 Labor Shop Storage Sheds
- Exemplary storage and housekeeping in B31 Labor Shop Storage Sheds and B51-Rigger's Trailer

- Excellent housekeeping in B82-100
- Excellent tool storage in B76-234 Carpentry Shop (Hersafe Router)
- Readily accessible PPE in B90-0027 mechanical room (hearing protection) and B76-105 Vacuum Pump Shop (safety glasses)
- Proactive injury prevention in B54-098 mechanical room under Perseverance Hall by padding several bump hazards
- Drum dispensing equipment is used in B81-100 water tower chemical supply building.

7 Conclusion

The IFA Team identified many instances of OSHA or PUB 3000 violations. The number of electrical violations was surprising given the emphasis that had been placed on electrical inspections during the past year. One finding in the cafeteria dishwashing room required a switch to be immediately locked out. Repairs were made by the LBNL Electrical Shop the following day. All of the findings noted in Appendix B should be tracked in LCATS until closed.

The NCAR violation in the Lighting Shop Storage Trailer resulted in a learning opportunity to clarify the storage and disposal procedures for both broken and intact fluorescent lamps. The Facilities Safety Coordinator and EHS Waste Management Specialist now have access to the trailer.

Permitted emergency generators were all in compliance with BAAQMD permits. Recommendations were made to ensure that the laboratory remains in compliance as new permit regulations come into effect.

The IFA Team identified a number of Noteworthy Practices. Several of these improvements were made in the areas of ergonomics and material handling which is the primary type of injury experienced by the Division. With few exceptions, overall improvements in housekeeping were also observed.

The Division should continue best in class initiatives targeting those areas where injury rates are highest.

Appendix A Buildings and Rooms Inspected

| BUILDING | ROOM | DESCRIPTION |
|-------------------|------------------------------|---|
| 2 | 129,A,B,D,E | Boiler |
| 2 | 130A | Mechanical Room |
| 2 | 100B | Conference Room |
| 31 | Complex | Storage, Offices, Trailers |
| 34,35, 37 | | Cooling Towers |
| 50 | 4009 | Mechanical Room |
| 50 | 4001 | Auditorium |
| 50A | 125A,B,135,141,143B | Mechanical Room |
| 50A | 7101-Roof | Mechanical Room |
| 50B | 243 | Mechanical Room |
| 50B | penthouse | Mechanical Room |
| 51 | 30 | Rigger's Storage |
| 51 | 204 | Offices |
| 54 | All | Cafeteria, Conference, & Mechanical Rooms |
| 69 | 150-all, 160. 161,162 | Transportation |
| 69 | 125 | Mail Room |
| 70 | 170,183, A,B,189,191 | Mechanical Room |
| 70 | 352A-Roof | Mechanical Room |
| 70A | 1104A,1104,1101 | Mechanical Room |
| 70A | 3329, 3377 | Mechanical Room |
| 70A | 5993,5998 | Roof |
| 76 | All | Shops, Offices, Motor Pool |
| 78 | All | Stores |
| 79 | All | Metal Rack |
| 81 | All | Water Treatment |
| 82 | All | Water Treatment |
| 90 | 27, A,B | Boiler Room |
| 90 | 4035, 4047, 4049, 4055, 4057 | Mechanical Room |
| Various site wide | Outside or Mechanical Room | Diesel-powered Standby Emergency Generators |
| Various Site wide | Various locations | SAA and WAA locations |

Appendix B Environment, Health and Safety Technical Inspection Findings

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|--|---|--|-------------|
| 1 | 31 | Eyewash/safety shower outside NW corner of building, inspection is out of date, location may be too close to AHU-01-31 | ANSI-Z358.1-1988, LBNL Chemical Hygiene and Safety Plan | Determine whether this equipment is still required at this location. Determine whether this equipment is located a safe distance from the AHU and fan. | |
| 2 | 31 | Flammable storage area needs seismic restraints | Lab seismic criteria Pub 3000 Chapter 23 | Secure against seismic movement | |
| 3 | 79 | Electrical Bank 496 blocked with wire mesh rolls | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove rolls | |
| 4 | 79 | Hopper was located inside the 36" taped clearance zone for PNL-001-79 | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Keep the area clear. | 79-1 |
| 5 | 82 | Open electrical junction box above panel 391A | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Cover box | 82-4 |
| 6 | 82 | 3 Unlabeled Containers | 29 CFR 1910.1200(f); LBNL Chemical Hygiene and Safety Plan | Label Containers | 82-1 |
| 7 | 82 | Exposed battery terminals | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Protect terminals against contact | 82-2, 82-2A |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|--|---|-------------|
| 8 | 82 | No secondary containment under batteries. Evidence of spills on concrete floor. | LBNL Chemical Hygiene and Safety Plan | Place secondary containment under batteries | |
| 9 | 82 | Electrical outlet and light switch are not protected from water source of eyewash/shower. | 29 CFR 1910.305(j)(1)(iv) Fixtures installed in wet or damp locations shall be approved for the purpose and shall be so constructed or installed that water cannot enter or accumulate in electrical parts; and 29 CFR 1910.305(j)(2)(ii) A receptacle installed in a wet or damp location shall be suitable for the location. | Install water proof cover on receptacle and switch. | |
| 10 | 82 | Confined Space under electrical panel 39A is not labeled | OSHA 1910.146, Pub3000 Ch.4.10 | Verify if a confined space actually exists and label accordingly. | |
| 11 | 82 | Broken chain on eyewash/shower and no inspection tag. | ANSI-Z358.1-1988, LBNL Chemical Hygiene and Safety Plan | Repair chain and install tag and test both eyewash and shower. | 82-5, 82-5A |
| 12 | 2-100C | Microwave Cabinet Canteen-missing light bulb, open socket is an electrical hazard even with the plastic guard | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace bulb | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|---|--|--------|
| 13 | 2-129 | Emergency lighting required | 29 CFR 1910.37(a)(4) Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarms, fire doors, exit lighting) must be in proper working order at all times; and 29 CFR 1910.37(b)(1) Each exit route must be adequately lighted so that an employee with normal vision can see along the exit. | Verify if emergency lighting exists. | |
| 14 | 2-129A | Obstruction in front of PNL 127-02 | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove obstruction | 2-3 |
| 15 | 2-129A | 001-02 Excess combustible storage & blocked electrical panel | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Clean area | 2-8 |
| 16 | 2-129B | Poor housekeeping- storage | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition | Clean area | 2-7 |
| 17 | 2-130 | Unlabeled electrical control box | NEC 408.4 | Label appropriately if necessary. | |
| 18 | 2-130 | Storage of PPE on DCW water valves, etc. | OSHA 1910.132, PUB 3000 Ch. 19 | Remove PPE from valves and store in central location. | |
| 19 | 2-130 | Plastic spray bottle not labeled and stored on top of electrical box. | 29 CFR 1910.1200(f); LBNL Chemical Hygiene and Safety Plan | Label to identify contents and primary hazard associated with the contents. Store off of electrical box. | 2-1 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-------------------|---|---|---|--------|
| 20 | 2-130A | Expired tube of Calcium Gluconate | LBNL Chemical Hygiene and Safety Plan | Obtain new tube from HS | |
| 21 | 2-130A | Housekeeping issues Construction debris left over from previous jobs still remains. | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition; and 29 CFR 1926.25(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures. | Clean up area. Ensure contractors removed all their materials | 2-5 |
| 22 | 2-130A | Incorrect storage of safety equipment/poor condition | OSHA 1910.132, PUB 3000 Ch.19 | Replace gloves, apron and faceshield and store correctly | 2-2 |
| 23 | 2-130A-Acid Waste | Signage does not specify type of eye protection required in area. Goggles are required. Safety glasses alone will not provide eye protection in the event of splash or spray. | PPE PUB 3000 Ch.19, 29 CFR 1910.132; Eye and face protection, 29 CFR 1910.133 | Assess the task and verify the required protection. Clearly indicate the type of eye protection required. Provide that protection. | |
| 24 | 2-130A-Acid Waste | Dust mask respirator stored in area. User unknown. | OSHA 29 CFR 1910.134, Pub 3000 Ch.19.8 | Verify that user has completed EHS 0311, Respirator Awareness Training (Dust Mask) and that a Hazard Evaluation has been performed. Refresh user on proper PPE storage. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|---|---|--------|
| 25 | 2-141 | Chair blocking electrical panel | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove chair | 2-6 |
| 26 | 2-143 | Insufficient Electrical Panel clearance | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Provide sufficient clearance. Remove storage. | 2-7 |
| 27 | 31A | Bottled cleaner is stored outside of the building on top of a metal container. | LBNL Chemical Hygiene and Safety Plan | Determine whether this chemical is required for use at this location. If it is still in use, store properly out of the sun. | |
| 28 | 50-4009 | No eyewash safety shower for boiler treatment chemical solution and no personal protective equipment cabinet. | OSHA 1910.151, LBNL Chemical Hygiene and Safety Plan | Install eyewash safety shower and wall storage cabinet for splash goggles, faceshield, gloves and spill kit. | |
| 29 | 50-4009 | Suspect asbestos debris at sink. | LBL Asbestos Management Plan | IH will sample week of 7/11/05 and abate as required. | |
| 30 | 50-4009 | Peeling lead based paint at the rear of air plenum near windows | OSHA 1910.1025 1926.62; LBNL Pub 3000 Ch4.12 | Remove peeling paint using Lead Paint Procedures. | |
| 31 | 50-4009 | BL-1-50 belt guard has a hole at shaft and shaft at blower housing needs additional guarding. | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Provide guard at both points. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|---|---|--------|
| 32 | 50-4009 | Potential unidentified confined space at the pit | OSHA-1910.146 | Have Confined Space Program Manager evaluate the space. | |
| 33 | 50-6003 | Door to corridor was wedged open | 2001 California Fire Code Section Article 12, means of egress shall be maintained. | Remove wedge | |
| 34 | 50A-0125 | Housekeeping issues on upper level | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition; and 29 CFR 1926.25(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures. | Clean up the area | |
| 35 | 50A-0135 | 36" clearance from electrical panels is required. The current taped area is 36" long but not wide | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Increase width of taped area to 36"/ | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|--|---|--|--------|
| 36 | 50A-0135 | Exposed electrical hazard-knock out plug is missing from conduit box. Box off of ADF-1 | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace missing plug. | |
| 37 | 50A-0125 | Door to corridor was wedged open | 2001 California Fire Code Section Article 12, means of egress shall be maintained. | Remove wedge | |
| 38 | 50A-0135 | Trash in electrical room | 2001 California Fire Code 1103.3.2.4 Combustible material shall not be stored in electrical equipment rooms. | Remove trash | |
| 39 | 50A-6105 | Less than 28 inches clear for exit path near logic analyzer | OSHA 1920.36(g) (2) An exit access must be at least 28 inches (71.1 cm) wide at all points. | Move stand to provide needed clearance | |
| 40 | 50B-0135 | Aisle clearance labels missing on breaker boxes. | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Label panels. | |
| 41 | 50B-0141 | Panel GP 31-50A is blocked with ladder and vacuum | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Clear items from panel. | |
| 42 | 50B-0141 | Formula 222L (corrosive) pump system is present in room without personal protective equipment station. | OSHA1910.132,133; LBNL Chemical Hygiene and Safety Plan & PUB 3000 Ch.19 | Install cabinet and stock with splash goggles, faceshield, gloves and spill kit. | 50A-1 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-------------------------------|--|---|--|--------|
| 43 | 50B-243 | Sound level needs to be re evaluated and an earplug dispenser needs to be installed. | OSHA 1910.95 | IH will schedule for week of 7/11/05. | |
| 44 | 50B-243 | Exposed wiring on both sides of the doorway from Rm243 to inner hallway (239). | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Install cover plates | |
| 45 | 50B-243 | AF2 Air Handler Door requires a confined space sign. | OSHA 1910.146 | Have Confined Space Program Manager evaluate the signage requirements. | |
| 46 | 50B-243 | Chemical treatment process is present in this room, however, there is no eyewash safety shower and no personal protective equipment cabinet. | OSHA 1910.151, LBNL Chemical Hygiene and Safety Plan | Install eyewash safety shower and wall storage cabinet for splash goggles, faceshield, gloves and spill kit. | |
| 47 | 50B-Penthous e-Roof top | The "Do Not Cross" Sign is faded. | OSHA 1910.145 | Replace (repaint) the Sign | |
| 48 | 50B-Penthous e-Roof top | Abandoned wires (telecom or electrical) observed below CT4 40B | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Remove wires | |
| 49 | 50B-Penthous e-Roof top | Lead paint hazard-Peeling and flaking paint in front of CT4 50B | OSHA 1910.1025 1926.62; LBNL Pub 3000 Ch4.12 | Remove peeling paint using Lead Paint Procedures. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|--|---|---|--|--------------|
| 50 | 50B-Penthouse-Roof top | Open electrical plug and conduit plate off of CT4-50B Vibration reset | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace missing plug and plate | 50B-1, 50B-2 |
| 51 | 54 | PNL-2-54 blocked. Location is outside walkway outside Hallway 119. | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Instruct employees in proper electrical panel access requirements. | |
| 52 | 54-002 | At bottom of stair case to room, dimmer switch heat sink exposed and slider with no insulating knob | 29 CFR 1910.303(a) Conductor/equipment not in approved condition | Replace | 54-13 |
| 53 | 54-098 Mechanical Room under Perseverance Hall | Ducts are 5' high and pose a bump hazard. They should be striped with yellow/black warning tape | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Apply appropriate guarding/warning | 54-3 |
| 54 | 54-098 Mechanical Room under Perseverance Hall | There is a hole in the wall. | 2001 California Fire Code 1111.1 | Seal openings to attain code compliant status | 54-4 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---|---|---|--|--------|
| 55 | 54-098 Mechanical Room under Perseverance Hall | Dimmer switch has cracked electrical case | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace holder. | |
| 56 | 54-098 Mechanical Room under Perseverance Hall | Incomplete machine guard for rotating parts on GP754 | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Extend shroud to cover rotating parts | 54-2 |
| 57 | 54-098 Mechanical Room under Perseverance Hall | Light fixture cover not securely attached, could fall on employee. | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Attach fixture cover securely. | |
| 58 | 54-104 | Plate warmer power cord insulation retracted exposing individual insulated conductors | 29 CFR 1910.305(g)(2)(iii) Flexible cords shall be connected to devices and fittings so that strain relief is provided which will prevent pull from being directly transmitted to joints or terminal screws | Remove from service / repair cord connection | 54-15 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-----------------------|--|---|---|--------|
| 59 | 54-104 Dishwashing | Garbage disposal switch is corroded, electrical wires exposed to water source located nearby. Imminent Danger. | 29 CFR 1910.303(g)(2)(i) Guarding of live parts | This circuit was placed under LOTO immediately by Electrical Supervisor on IFA Team. Repairs have been completed by Facilities electrical shop | 54-11 |
| 60 | 54-107 | Grease on the floor mop from the Grill Area is being pushed into the general cafeteria (108) area causing slippery conditions. | 29 CFR 1910.22(a)(2) The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition | Do not push grease out of Rm107 into Rm 108. | |
| 61 | 54-107 | Receptacle near floor level on brick fireplace wall has tape over the fixture and has a metallic coverplate | 29 CFR 1910.303(a) Conductor/equipment not in approved condition | If out of service, remove and place blank cover plate over opening. If in active service, must be a GFCI receptacle or on GFCI protected circuit | |
| 62 | 54-107 | Free-standing freezer RF-051-54 does not appear to be seismically secured | Lab seismic criteria Pub 3000 Chapter 23 | Secure against seismic movement | |
| 63 | 54-107 | Plastic storage rack at west end not secured. | Lab seismic criteria Pub 3000 Chapter 23 | Secure against seismic movement | 54-22 |
| 64 | 54-107 | 2 wall receptacles in location requiring GFCI. | NEC 210.8 (B)(2) Commercial and institutional kitchen area requires GFCI protection for personnel | Replace with GFCI receptacle or label if wired on existing GFCI circuit | |
| 65 | 54-107 | Floor stand fan attachment plug grounding pin has been broken off of attachments plug | 29 CFR 1910.304(f)(5)(v) Exposed non-current carrying metal parts of cord and plug-connected equipment that may become energized shall be grounded | Remove from service and replace attachment plug | |
| 66 | 54-107 | Grounding pin from fan is stuck in receptacle on wall behind work table | 29 CFR 1910.303(a) Conductor/equipment not in approved condition | Replace receptacle (see 2nd to last item above) | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|--|---|----------------------------------|---|
| 67 | 54-107 | Cover plate missing from junction box for power cord attachment to bread warmer | 29 CFR 1910.303(g)(2)(i) Guarding of live parts and 29 CFR 1910.303(h)(2)(ii) installations accessible to unqualified persons | Apply required safeguards | |
| 68 | 54-108 | Cleanliness of food service was questionable. Examples include: stained countertops, cheese on top of an electrical outlet, food particles along the salad bar counter edge, grease on dishes, spilled soup residue around the counter, garbage cans positioned on top of the counters etc.. | CCR, Health and Safety Code, Division 104, Part 7, Chapter 4 California Uniform Retail Food Facilities Law (CURFFL). Article 6, General Sanitation Requirements, Section 114040: The premises of each food facility shall be kept clean and free of litter, rubbish, and vermin. Article 8, Sanitation Requirements for Food Establishments, Section 114090: (g) All utensils, display cases, windows, counters, shelves, tables, refrigerator units, sinks... used in the preparation, sale, service, and display of food shall be... maintained to be easily cleaned, and shall be kept clean and in good repair. (k) Nonfood contact surfaces of equipment shall be kept cleaned at a frequency necessary to prevent accumulation of residue. | Practice sanitation regulations. | 54-5, 54-6, 54-7, 54-8, 54-8A, 54-9, 54-10, 54-14, 54-16, 54-23 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|--|--|--------|
| 69 | 54-108 | Permit to Operate #2497 valid 1/1/03- 12/31/03, signed Brigitte Bankay, auth Mark Freiberg. Permit posted at cafeteria entrance is expired. | CCR, Health and Safety Code, Division 104, Part 7, Chapter 4 California Uniform Retail Food Facilities Law (CURFFL). Article 3, 113920, Permit Requirements. A food facility shall not be open for business without a valid permit. A permit shall be posted in conspicuous place. | Verify that cafeteria has current valid permit. Post current permit. Remove expired permit. | |
| 70 | 54-108 | RF-38-54 located at end of counter which has coffee/cereal/Tropicana. Mold growing on inside of glass of refrigerated case. | CCR, Health and Safety Code, Division 104, Part 7, Chapter 4 California Uniform Retail Food Facilities Law (CURFFL). Article 8, 1140800, Sanitation Requirements for Food Requirement. Food displayed in clean, sanitary, and covered or otherwise protected containers. | Clean mold from case. | |
| 71 | 54-111 | Contractor cutting metal counter top was not wearing any PPE | PPE general requirements. 29 CFR 1910.132; Eye and face protection, 29 CFR 1910.133 | Contractor was advised of LBNL's PPE requirements and work continued after correct PPE was used. | 54-25 |
| 72 | 54-118 | Exposed damaged asbestos insulation. Boiler Room, left of Tank 54, WH 001, cold water elbow at wall, 2 feet above floor level. | Repair in accordance with PUB 3000 Ch 4.9, OSHA 1910.1001 & 1926.1101 | Patch or remove damaged insulation. | |
| 73 | 54-118 | PNL-007-54 blocked with pro-clean bucket, dustpan. | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Instruct employees in proper electrical panel access requirements. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|--------------------|---|---|---|--------|
| 74 | 54-119 | Sign on wall at employee restrooms says Emergency First Aid, but the Zee first aid kit at this location is empty. | LBL policy. Go to Health Services for First Aid treatment. | Remove signage and empty first aid kit, or stock first aid kit. | |
| 75 | 54-119 | Electrical wires are coming out of open knock outs from 04-54 to FPU 01-54 | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Repair | |
| 76 | 54-119 | GP-5-54-8A-7, BL-14-54-8A-8, BL-13-54-8A-8, Duct Heater 8A-10 starter/switches have knockout sections that have been opened | 29 CFR 1910.303(a) Conductor/equipment not in approved condition | Seal knockout openings | |
| 77 | 54-119 Egress door | Storage outside of back door blocks clear egress pathway | 29 CFR 1910.36(g)(2) An exit access must be at least 28 inches wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access | Clear stored items. Maintain 28 " unrestricted egress pathway. Current storage in this confined area is unacceptable and very poor practice | 54-12 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------------|---|--|----------------------------------|-----------------------------------|
| 78 | 54-122 | Lack of sanitary conditions in Woman's & Men's Bathrooms. Examples: bar of soap in women's bathroom when liquid soap is required, dirty floor in Men's bathroom, paper towel not in dispenser, door is dirty. | CCR, Health and Safety Code, Division 104, Part 7, Chapter 4 California Uniform Retail Food Facilities Law (CURFFL), Article 8, Sanitation Requirements for Food Establishments. Section 114105, Toilet Facilities: In each food establishment, there shall be provided clean toilet facilities in good repair for use by employees. Section 114115, Hand washing Facilities: Hand washing cleanser and single-use sanitary towels or hot-air blowers shall be provided in dispensers at, or adjacent to, hand washing facilities. | Practice sanitation regulations. | 54-17, 54-18, 54-19, 54-20, 54-21 |
| 79 | 69-125 Mail Room | Light switch cover plate | 29 CFR 1910.303(a) Conductor/equipment not in approved condition | Repair | |
| 80 | 69-125 Mail Room | Bunn string machine guarding of nip and pinch points inadequate | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Apply required safeguards | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---|---|---|---|--------------|
| 81 | 69-125 Mail Room | Worm gear drive on Pitney Bowes metering machine must be guarded | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Devise and install machine guarding over drive gear | |
| 82 | 69-125 Mail Room Telephone Closet | Bulk storage of combustible load prevents safe access and contributes to fire hazard loading in telephone closet | 2001 California Fire Code 1103.3.2.4 | Clear stored material, use archives, discard, etc. | |
| 83 | 69-150 Receiving | Fixed fan mounted on back wall is energized through attachment plug | 29 CFR 1910.305 | Install fixed wiring methods | |
| 84 | 69-150 Receiving Cubicles G, H, K and general space | General inappropriate of relocatable power taps (power strips) for heating appliances (coffee pots, space heater, water cooler) and in a "cascade" (plugged into another power strip) | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling | Ascertain power needs and install permanent wiring and outlets. Review workspaces to insure compliance. | |
| 85 | 69-160 Staging Area | Materials stored to present a hazard under seismic activity (dollies on top of cabinets) | Lab seismic criteria Pub 3000 Chapter 23 | Inspect regularly and apply PUB 3000 criteria | |
| 86 | 69-160 Staging Area | Heater emergency electrical disconnect requires 36" access clearance | 29 CFR 1910.303(g)(1)(ii) PUB 3000 Chapter 8, Section 8.9.4 | Clear spaces and improve housekeeping | |
| 87 | 70A-3329 Boiler room | Large center section louvered panel from air intake located facing the loading dock is not securely placed in frame. | If potential for falling and striking employee, this would be: 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Verify this louver is not subject to falling on employee. Secure louvered panel in frame | 70A-1; 70A-2 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------------|---|---|--|--------------|
| 88 | 70A-Acid Waste | Signage does not specify type of eye protection required in area. Goggles would be desirable. Safety glasses alone will not provide eye protection in the event of splash or spray. | PPE general requirements. 29 CFR 1910.132; Eye and face protection, 29 CFR 1910.133 | Assess the task and verify the required protection. Clearly indicate the type of eye protection required. Provide that protection. | |
| 89 | 70A-Acid Waste | Rubber boots located in area are deteriorated with cracks and holes. PPE located inside hazardous area where it would not be accessible in event of a spill. | 29 CFR 1910.132, Pub 3000 Ch.19 | Discard non-functional PPE, obtain replacement. Locate PPE within reach of the doorway. | 70A-4; 70A-5 |
| 90 | 70A-Acid Waste | Ladder up against TK8-70A and TK9-70A hits the tanks & could compromise their integrity. In addition, this is improper use of a step ladder. | 29 CFR 1910.25(d)(2)(iii) Portable ladders shall be so placed that the side rails have a secure footing. The top rest for portable rung and cleat ladders shall be reasonably rigid and shall have ample strength to support the applied load | Design correct type of raised access to the tanks. | 70A-3 |
| 91 | 70A-Acid Waste | PPE eyewear storage at entrance to area is broken. PPE is not in serviceable condition (covered with dirt). | PPE general requirements. 29 CFR 1910.132; Eye and face protection, 29 CFR 1910.133 | Replace damaged eyewear holder. Supply clean and usable eyewear. | |
| 92 | 70A-Acid Waste Roadway | The wooden guardrail on the roadway adjacent to the acid waste tanks is in poor condition | 29 CFR 1910.23(e)(3)(iv) The anchoring of posts and framing of members for railings of all types shall be of construction that the completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail | Evaluate and repair or replace guardrail | 70A-6 |
| 93 | 70A-3329 | Wooden ladder 423-76 is broken | 29 CFR 1910.25(d)(1)(i) Ladders shall be maintained in good condition at all times | Repair or discard | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|--|--|---|--|--------|
| 94 | 70A-3329 | Defective wooden ladder not marked or tagged "Dangerous, Do Not Use" | 1910.25(d)(1)(x) Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use" | Mark/tag or dispose | |
| 95 | 70A-3329 | P95 filtering face piece- Who is using it?/Hazard Evaluation | OSHA 1910.134(c)(2), PUB 3000 Ch19.8 | Consult with IH Group to evaluate the appropriateness of the facepiece and provide training. | |
| 96 | 70A-3329 | Faceshield improperly stored on generator. Left out in the open where it can get scratched and particles fall on it and then get in eyes or ingested. | OSHA 1910.132, PUB 3000 Ch.19 | Obtain new faceshield and store correctly | |
| 97 | 70A-3329 | EG-17-70A the output disconnect temporary hose poses a trip hazard | OSHA 1910.22(b), PUB 3000 Ch5.6.5 Walking Working Surfaces | Eliminate trip hazard | |
| 98 | 70A-3329 | PNL 097-70A- Trash is stored underneath | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove trash, maintain 36" clearance | |
| 99 | 70A-Acid Waste Fill 1st Floor Loading Dock Area Driveway | Warning and use labels have disappeared | OSHA 1910.1200(f), LBNL Chemical Hygiene and Safety Plan | Re-label | 70A-7 |
| 100 | 70A-Cooling Tower Area | ~30gal poly drum of NaOH. Label fading, no secondary containment, closure is failing, no PPE apparent, EWSS is one flight of stairs (non-compliant pitch) up | Pub 3000 Ch 4.8.1, LBNL Chem Hygiene and Safety Plan | Take appropriate measures to abate non-compliant issues | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|--|--|---|--|---------------|
| 101 | 70A-Cooling Tower Area | Electrical outlets, switches, conduit and associated wiring in the old treatment feed pump shed are not code compliant (no GFCI, exposed wiring) | 29 CFR 1910 Subpart S | If no longer in service, remove. If in service, upgrade to code compliant status | |
| 102 | 70A-Loading Dock Stairs to Cooling Tower | Fixed industrial stairs pitch may exceed allowable limit under OSHA of 50 degrees to the horizontal | 29 CFR 1910.24 Fixed industrial stairs. | Verify pitch does not exceed 50 degrees to the horizontal. If it does, design compliant stairs and install | |
| 103 | 76 234 Carpenter Shop | MT 376, MT 676, MT 276, vertical spindle sanders and disc sander, not secured to floor | 29 CFR 1910.212(b) Machines designed for a fixed location shall be securely anchored to prevent walking or moving; and Lab seismic criteria Pub 3000 Chapter 23 | Verify requirements for restraint of equipment. | 76-19 |
| 104 | 76 234 Carpenter Shop | Belt sander table is broken | Machinery shall be maintained in safe and operable condition; and 29 CFR 1910.213(p)(4) Belt sanding machines shall be provided with guards at each nip point where the sanding belt runs on to a pulley to prevent operator hands or fingers from coming in contact with nip points. The unused run of the sanding belt shall be guarded against accidental contact. | Replace table and verify guarding of all nip points is in place | 76-10, 76-10A |
| 105 | 76 234 Carpenter Shop | Faceshield improperly stored. Left out in the open where it can get scratched and particles fall on it and then get in eyes or ingested. | OSHA 1910.132(b)(6), LBL PUB 3000 Ch.19 | Store correctly | 76-20 |
| 106 | 76- High Bay Area Outside Rm 123 | Extension ropes appear worn | 29 CFR 1910.25(d)(1)(iii) Frayed or badly worn rope shall be replaced | Inspect and replace as necessary. | 76-8 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|----------------------------|--|---|---|-------------|
| 107 | 76 High Bay outside Rm 103 | Air intake is blocked by Flammable Storage Cabinet. The cabinet is not seismically restrained. | CFC Section 1103.3.2.4 & Seismic-PUB 3000 Ch.23 | Move cabinet away from air intake and restrain it. | 76-22 |
| 108 | 76 High Bay outside Rm 103 | Flammable Storage Cabinet doors do not close completely and unable to verify UL listing | California Fire Code Article 79 | Repair or replace and validate UL label is present otherwise replace | 76-2B |
| 109 | 76 High Bay outside Rm 103 | Evidence of smoking (butts, matches, ashes) immediately adjacent to flammable storage cabinet | California Fire Code Article 79, Section 7902.1.3, LBNL RPM 2.23 Section J | Post 'No Smoking' sign in proximity to flammable storage cabinet | 76-6 |
| 110 | 76 M Paint Shop Trailer | Hardhat has broken suspension. | OSHA 1910.132, PUB 3000 Ch. 19 | Discard the broken suspension, evaluate the hardhat. Replace suspension if the hardhat is still good. | 76M-18 |
| 111 | 76-103 Boiler Rm | Housekeeping issues | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition; and 29 CFR 1926.25(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures. | Clean up area. | 76-3, 76-3A |
| 112 | 76-103 Boiler Rm | Nitrogen cylinders stored in boiler room are not seismically secured. | Lab seismic criteria Pub 3000 Chapter 23 | Secure / remove | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-------------------------|---|---|--|--------------|
| 113 | 76-103-Boiler Rm | Custodial equipment/supplies are stored under electrical panels | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove equipment. Remind of employees of panel clearance zone requirements. | 76-23 |
| 114 | 76-103-Boiler Rm | 36 inch clearance required for controllers and electrical shutoff access for GP-3, GP-25, GP-6, GP-2-26, GP-032, BR-1-76, BR-2-76 | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Clear spaces and improve housekeeping | 76-3A, 76-3B |
| 115 | 76-103-Boiler Rm | Boiler control panel door left ajar. | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Panel door was closed during walkthrough. Remind PMTs to close panel doors after accessing panel | |
| 116 | 76-105 Vacuum Pump Shop | Evidence of smoking inside the shop was found (butts, ashes) | No Smoking in LBL buildings-RPM 2.23 Section J | Discuss issue with employees of the shop | |
| 117 | 76-105 Vacuum Pump Shop | Unlabeled Spray bottle | OSHA 1910.1200(f), LBNL Chemical Hygiene and Safety Plan | Label bottle | 76-1, 76-1A |
| 118 | 76-105 Vacuum Pump Shop | Unlabeled containers under work bench- 1 gal. metal can | OSHA 1910.1200(f), LBNL Chemical Hygiene and Safety Plan | Label can | |
| 119 | 76-105 Vacuum Pump Shop | Unlabeled 5 gal. safety can | OSHA 1910.1200(f), LBNL Chemical Hygiene and Safety Plan | Label can | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-------------------------|--|---|--|--------|
| 120 | 76-105 Vacuum Pump Shop | Kester rosin core solder wire not in Chemical Management System | LBNL Chemical Hygiene and Safety Plan | Add solder to Chemical Hygiene Management System | |
| 121 | 76-105 Vacuum Pump Shop | Hardhat has broken suspension. (yellow Bullard hardhat) | PPE maintenance. 29 CFR 1910.132 | Discard the broken suspension, evaluate the hardhat. Replace suspension if the hardhat is still good. | |
| 122 | 76-109 | Nitrogen cylinders are not seismically secured. | Lab seismic criteria Pub 3000 Chapter 23 | Secure cylinders | |
| 123 | 76-109 | 2 nalgene containers (antifreeze?) not labeled - Finding [but in secondary containment - Noteworthy Practice] | OSHA 1910.1200(f); LBNL Chemical Hygiene and Safety Plan | Label Containers | 76-25 |
| 124 | 76-109 | Hose stored on upper shelf of tire rack susceptible to falling on room occupant into egress path during earthquake | Lab seismic criteria Pub 3000 Chapter 23 | Place heavy items on lower shelves and provide restraints. Securing heavier items to shelving is also good practice. | |
| 125 | 76-109 | Equipment plugged into relocatable power tap | 29 CFR 1910.305(a)(2)(i) Temporary electrical power installations may only be used during remodeling, maintenance, repair, demolition or similar activities; and 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling | Plug equipment into correct outlets | 76-24 |
| 126 | 76-109 | Dust mask respirators are stored in area. User Jesse Knight not trained in use of Dust Masks | OSHA 29 CFR 1910.134 | Complete EHS 0311, Respirator Awareness Training (Dust Mask) | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|-----------------------|---|--|---|--------|
| 127 | 76-109 Motor Pool Bay | Daisy chaining of electrical cords. Cords under strain. | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling | Install receptacles permanent wiring methods or alter needs | 76-9 |
| 128 | 76-109 Motor Pool Bay | Cover plate missing from GFCI receptacle | 29 CFR 1910.303(b)(2) and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Install cover plate | 76-9 |
| 129 | 76-129 HVAC Shop | Temporary (extension cord) wiring system with metal standard U-ground fourplex receptacle box | LBNL RPM requires NRTL listed/tested equipment | Remove from service | 76-28 |
| 130 | 76-129 HVAC Shop | First aid kit containing band aids, burn products, etc. is available | LBNL policy is to report injuries to Health Services and receive treatment. | These products have been removed from the laboratory and should only be available at Health Services. | |
| 131 | 76-129 HVAC Shop | Unsecured gas cylinders | Compressed Gas Association Pamphlet P-1 1984, OSHA 1910.253 (b)(3)(ii) , BMP, PUB 3000 Ch. 23 | Secure cylinders | 76-12 |
| 132 | 76-133 Shop | Hardhat has broken suspension. | PPE maintenance. 29 CFR 1910.132, PUB 3000 Ch.19 | Discard the broken suspension, evaluate the hardhat. Replace suspension if the hardhat is still good. | 76-29 |
| 133 | 76-133 Shop | Econoline sandblast glove box on metal table is not secured | Lab seismic criteria Pub 3000 Chapter 23 | Secure glove box | |
| 134 | 76-133 Shop | Gap between wheel and work rest on grinder is too wide | 29 CFR 1910.215(a)(4) Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and rest which may cause wheel breakage. Adjustment shall not be made with wheel in | Maintain work rest adjusted to within 1/8" of wheel | 76-26 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------------|---|---|--|--------|
| | | | motion. | | |
| 135 | 76-133 Shop | Abrasive wheel has visible signs of use with aluminum or other soft metal | Sign on machine requires that abrasive wheel not be used for aluminum. OSHA General Duty to provide safe workplace and Best Practices | Verify proper use of wheel in accordance with manufacturer's specification. Inspect wheel verify safe condition or replace. | 76-26 |
| 136 | 76-133 Shop | Shelving system installed so as to block one half of receptacle (22A1) box | NEC Article 100 - Accessibility | Relocate shelving or receptacle | 76-13 |
| 137 | 76-133 Shop | Welding cylinders on storage carts have regulators attached but are not in use. | 29 CFR 1910.253(b)(2)(iv), PUB 3000 Chapter 13, Section 13.4.5 | Remove regulators and replace caps on cylinders | 76-4 |
| 138 | 76-133 Shop | Make shift welding station. Evaluate hazards | LBNL PUB 3000 Ch.6 | Evaluate hazards and set up a proper station if necessary. | 76-14 |
| 139 | 76-133 Shop | Empty spindle unguarded on wire brush/buffer machine | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Guard rotating parts. Also note that sign above machine is inadequate. Eye and face protection must be used at all times when machine is operated. | 76-15 |
| 140 | 76-224 Plumbing Weld Shop | The door to the plumbing high bay has exposed chains/gears | 29 CFR 1910.212(a)(1) | Guard as appropriate | 76-11 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------------------------|---|---|---|-------------|
| 141 | 76-224 Plumbing Weld Shop | Gas cylinders in storage on welding cart have regulators attached | 29 CFR 1910.253(b)(2)(iv), PUB 3000 Chapter 13, Section 13.4.5 | Remove regulators and replace caps on cylinders | 76-30 |
| 142 | 76-234D Key Shop | Overhead fluorescent lights are not guarded and material storage extends almost up to the ceiling height. | 29 CFR 1910.303(g)(2)(ii) In locations where electric equipment would be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage | Guard lights as appropriate (tube holder or cage over fixture) | 76-27 |
| 143 | 76-235 Paint Shop | Cover plate missing from ventilation controller resulting in exposed wiring | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Cover the missing plate | 76-5 |
| 144 | 76-Motor Pool High Bay | Used battery storage vulnerable to damage by vehicles | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Provide protection against damage | 76-2, 76-2A |
| 145 | 76-Motor Pool- High Bay | Terminals exposed on batteries awaiting recycling | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Provide protection against shorting terminals | 76-2, 76-2A |
| 146 | 76-Motor Pool High Bay | Blocked electrical panel xx576- Cans, drums stored underneath panel | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove cans, drums. Perhaps paint or stripe a "no storage zone" under panel | |
| 147 | 78-101 (Section 2) | Mettler balance is plugged into temporary wiring (extension cord) | 29 CFR 1910.305(a)(2)(i) Temporary electrical power installations may only be used during remodeling, maintenance, repair, demolition or similar activities | Install permanent wiring | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|--------------------|--|---|--|--------|
| 148 | 78-101 (section 2) | Telephone wire is suspended from a sprinkler pipe | NFPA 13 Sec.2-6.1.7; OSHA 1910.37(m) | Relocate wire | 78-2 |
| 149 | 78-101 (Section 2) | Inconsistent use of seismic restraints. All shelves require restraints. | Lab seismic criteria Pub 3000 Chapter 23 | Install seismic restraints. | 78-4 |
| 150 | 78-101, 103, 119 | Fluorescent light bulbs vulnerable to physical damage in all material handling areas | 29 CFR 1910.303(g)(2)(ii) In locations where electric equipment would be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage | Install light tube protectors | |
| 151 | 78-103 (Section 3) | Ladders are not restrained (section 3) | Lab seismic criteria Pub 3000 Chapter 23 | Restrain ladders | |
| 152 | 78-103 (Section 3) | K-O seal missing on Card Access Panel | 29 CFR 1910.305(b)(1) Unused openings in cabinets, boxes, and fittings shall be effectively closed | Replace seal | |
| 153 | 78-119 | Battery fill area needs an eyewash / safety shower. | 29 CFR 1910.178(g)(2) Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection... | Install eyewash safety shower. | |
| 154 | 78-119 | Electrical panels blocked with waste bin. | 29 CFR 1910.303(g)(1)(ii) PUB 3000 Chapter 8, Section 8.9.4 | Instruct employees in proper electrical panel access requirements. | 76-3 |
| 155 | 78-119 | Dirty rag left on floor. | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition | Clean up work area. If rag is oily, store properly. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|--|--|--------|
| 156 | 81/100A | Refrigerator plugged into relocatable power tap. | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling | If refrigerator is necessary, re-arrange so that it may be plugged into wall outlet. | |
| 157 | 81/100A | Refrigerator contains (few) food items. Refrigerator is not posted for food. | OSHA 1910.141(g)(4), LBNL Chemical Hygiene and Safety Plan | Verify usage of refrigerator. Add appropriate signage for food storage, or not for food storage. | |
| 158 | 81/100A | Filtering facepiece respirator stored on faceshield. Users not aware of proper respirator storage. | OSHA 29 CFR 1910.134 | Store dust mask out of dusty area. Complete EHS 0311, Respirator Awareness Training (Dust Mask) | |
| 159 | 81/100A | Safety glasses stored on faceshield, for use with water treatment chemicals. Safety glasses are not appropriate eye protection for exposure to chemicals. | OSHA 29 CFR 1910.133, LBNL PUB 3000 Ch.19 | Obtain suitable protective goggles from Stores. | |
| 160 | 81-100 | Area posted for wearing eye protection. Signage is not specific. | OSHA 29 CFR 1910.133, LBNL PUB 3000 Ch.19 | Specify the type of eye protection required in the area. | |
| 161 | 81-100 | Temporary (extension cord) wiring system with metal standard U-ground fourplex receptacle box | LBNL RPM requires NRTL listed/tested equipment; and 29 CFR 1910.303(b)(2) and 29 CFR 1910.303(a) Conductor/equipment not in approved condition. | Remove from service | 81-R-1 |
| 162 | 81-100 | Unlabeled chemical containers | OSHA 1910.1200 (f), LBNL Chemical Hygiene and Safety Plan | Label for contents or label clean/empty | 82-1 |
| 163 | 81-100 | Wooden ladder with broken base leg | 29 CFR 1910.25(d)(1)(i) Ladders shall be maintained in good condition at all times | Discard or repair ladder. Ladders must be inspected. | 81-1 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------|--|---|---|-------------|
| 164 | 81-100 | Defective wooden ladder not marked or tagged "Dangerous, Do Not Use" | 1910.25(d)(1)(x) Ladders shall be inspected frequently and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use" | Mark/tag or dispose | 81-1 |
| 165 | 81-100 | EWSS last inspection date is 1/9/04 on inspection tag | Sufficient Work Smart Standard #79 - ANSI Z358.1 Standard for Emergency Eyewash and Shower Equipment, (Applicable sections). Note: (1) Testing frequency to be quarterly, not weekly. | Insure inspection schedule is met | |
| 166 | 81-100 | Make shift sink is being held up by C-clamps and empty plastic chemical drums are supporting the base. | Lab seismic criteria Pub 3000 Chapter 23 | Have proper sink installation engineered and installed to code criteria. Verify this installation is acceptable with respect to plumbing code also. | 81-4, 81-4A |
| 167 | 81-100 | Secondary containment for treatment chemicals is inadequate for given volumes | LBNL Chemical Hygiene and Safety Plan | Replace with containment that holds 110% of the largest single container. | 81-5 |
| 168 | 81-100 | Boxes & containers on shelving racks are not seismically restrained | Lab seismic criteria Pub 3000 Chapter 23 | Restrain boxes | 81-6 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------|---|--|---|----------------------------|
| 169 | 81-100A | Table top fan-spliced electrical cord with new plug without GFCI prong and cage insufficient to prevent fingers from contacting the blade | 29 CFR 1910.305(g)(2)(ii) Flexible cords shall be used only in continuous lengths without splice or tap; and 29 CFR 1910.334(a)(2)(ii) If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and not employee may use it until repairs and tests necessary to render the equipment safe have been made. | Discard Fan | 81-2, 81-3 |
| 170 | 81-100A | GFCI electrical outlet needed near bottled water dispenser | PUB 3000 Ch8 Appendix L | Install GFCI | |
| 171 | 81-100A | Bottled Water dispenser is not seismically secure | Lab seismic criteria Pub 3000 Chapter 23 | Secure or remove dispenser if not in use. | |
| 172 | 90- | Panel Schedule 229A not updated | NEC 408.4 | Update schedule | |
| 173 | 90/4035 | Protective cover has been removed from ceiling light fixture, located near BL-890. | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace cover on light fixture. | |
| 174 | 90-0025 and 0027 | Numerous wall openings and penetrations represent breach of boiler room walls | 2001 California Fire Code 1111.1 | Seal openings to attain code compliant status | 90-9; 90-10; 90-11; 90-12; |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|--|--|--------|
| 175 | 90-0026H | Electrical box cover not on adequately due to missing screws. Located above capacitor bank (Commonwealth Sprague) | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Cover box | |
| 176 | 90-0026H | Lead brick on floor in front of BL07-90. | LBNL PUB 3000 Ch.4.12 | Dispose of brick in lead recycle hopper outside B77. | |
| 177 | 90-0027 | Abandoned electrical controls panel | LBNL Pub 3K Ch 8 / Best Practice | Label as 'Out of Service' or remove | 90-13 |
| 178 | 90-0027 | GP8-90 sump cover grate is not in place leaving floor opening due to additional plumbing work | 29 CFR 1910.23(a)(5) Every pit and trapdoor floor opening, infrequently used, shall be guarded by a floor opening cover of standard strength and construction. While cover is not in place, the pit or trap opening shall be constantly attended by someone or shall be protected on all exposed sides by removable standard railings. | Modify sump grate to accommodate the additional plumbing fixtures and it will fit in place | |
| 179 | 90-0027 | Air compressor drive belt guarding does not cover rotating element hazard completely | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Correct machine safeguarding deficiency | 90-14 |
| 180 | 90-0027 | Copper drain tubing and protective unistrut on floor create tripping hazard | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Install safeguards or relocate trip hazard | 90-15 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|------------------|---|---|--|--------------|
| 181 | 90-0027 | Several trip hazards exists | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Install safeguards or relocate trip hazard | 90-18, 90-19 |
| 182 | 90-0027 | Flammable storage cabinet door does not operate properly | Rated or listed equipment not in condition under which it was rated or listed | Repair or discard | 90-16 |
| 183 | 90-0027 | Custodial mop heads were stored under the electrical panel | 29 CFR 1910.303(g)(1)(ii) Clear Spaces. Working space required by this subpart may not be used for storage; and PUB 3000 Chapter 8, Section 8.9.4 | Remove mop heads. The area under electrical panels requires 36" clearance. | |
| 184 | 90-0027 | Eyewash and safety shower are not lined up with one another. | LBNL Chemical Hygiene and Safety Plan | Line up shower with eyewash bowl. | |
| 185 | 90-0027A | Verify that emergency lighting exists in the boiler room | 29 CFR 1910.37(a)(4) Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarms, fire doors, exit lighting) must be in proper working order at all times; and 29 CFR 1910.37(b)(1) Each exit route must be adequately lighted so that an employee with normal vision can see along the exit. | Verify that emergency lighting exists in the boiler room | |
| 186 | 90-0027C | Exposed low voltage wiring | 29 CFR 1910.303(b)(2) and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Install cover | 90-8 |
| 187 | 90-0027C | GP8 90/GP10-90 Sumps-Verify if employees enter and evaluate for confined space hazards. | OSHA-1910.146 LBNL PUB 3000 Ch.4 | Have confined space manager evaluate/classify the sumps. | |
| 188 | 90-4035 | Brace for conduit on AHU pad is a tripping / impalement hazard. | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Soften angular steel stock edges/corners | 90-17 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------|---|---|---|--------------------------------------|
| 189 | 90-4035 | BL06-90 vertical pipe rises out of the floor creating a trip hazard | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Put cap on vertical bar and use caution tape | |
| 190 | 90-4035 | BL04 90 has a hole in the guard. Exposed machinery. | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Secure access cover over large drive pulley and any shaft exposures | |
| 191 | 90-4035 and 4047 | BL01-90; BL03-90; BL04-90; BL05-90; BL06-90; Numerous instances of rotating drive shafts, belts, and pulleys either incompletely or not safeguarded | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Apply required guarding | 90-3 90-4 90-5 90-6 90-7 |
| 192 | 90-4045 | Water bottles pose a seismic hazard | Lab seismic criteria Pub 3000 Chapter 23 | Secure the bottles. | |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------|---|---|--|--------|
| 193 | 90-4047 | Debris (4"x4", etc.) left by contractors | 29 CFR 1910.22(a)(1) All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition; and 29 CFR 1926.25(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails, and all other debris, shall be kept cleared from work areas, passageways, and stairs, in and around buildings or other structures. | Clean/remove debris | |
| 194 | 90-4047 | Missing cover on damper motor-Supply duct to BL-1 | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Replace cover | 90-2 |
| 195 | 90-4047 | BL03-90 has 2 holes in the rear exposing machinery. | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Cover hole. Safeguard all moving parts | 90-1 |

| Item | Building -Room # | Description of Finding/Noteworthy Practice | OSHA/LBL Violation or Recommendation | Corrective Action | Photos |
|------|---------------------------------|--|---|---|--------|
| 196 | 90-4047 | BL-02- The mesh section over the blower (guarding of belt) is moveable and machinery can be exposed. | 29 CFR 1910.212(a)(1) One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks | Secure mesh | |
| 197 | 90-4049B | Damaged elbow pipe insulation. | LBL Asbestos Management Plan | Have asbestos trained Facilities PMT or Plumber repair. | |
| 198 | 90-4052 | Excess storage in telecommunications closet | 2001 California Fire Code 1103.3.2.4 | Clear stored material, use archives, discard, etc. | |
| 199 | Between 31K and Gardner' s Shed | PVC pipe stored creating potential laceration hazard (sharp 45 degree cut ends) | 29 USC 654 OSHA General Duty to provide safe workplace and Best Practices | Cut sharp ends or otherwise protect | |
| 200 | Gardner' s Shack | Condolet missing cover (north side of shed) | 29 CFR 1910.303(b)(2) Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling; and NEC Article 110.2 Incomplete rated assembly per NEMA outlet and switchbox section and NRTL criteria | Cover condolet | |

Appendix C Environment, Health and Safety Technical Inspection Observations and Recommendations

| Item | Building/Room # | Description of Observation | Recommendation | Photo # |
|------|--|--|---|---------|
| 1 | 54-119 | FPU-04-54 panel door open | Keep energy management panel locked | |
| 2 | 54-002A | Excess storage in mechanical room | Remove unrelated material from the congested space to ensure safe access by PMTs and others. Assure that no combustible material is stored in mechanical room as this is not allowed by code (2001 CFC 1103.3.2.4). | 54-24 |
| 3 | 69-161 Forklift & Haz Mat Storage Area | Signage may be out of date | Recommend re-evaluating sign requirements and needs for areas 161 and 162 (storage of flammable liquids) and replacement with new legible signs as appropriate | |
| 4 | 69-150 Receiving | Disaster trauma kit location not identified, Tim Montoya cubicle. | LBL Disaster Management policy | |
| 5 | 70A-3329 | Part of valve actuating solenoid exposed mounted by WH-2-70A | Remove | |
| 6 | 70A-Acid Waste | Tank # TK-11-70A plastic light window has been burned badly from light used for viewing tank content fill level. | Check other light windows to determine condition and check with Robert Fox if they need to be replaced. Check with electricians to determine if there is an electrical hazard. | |
| 7 | 70A-3329 | Airline to KC-3-70A is a temporary set up. | Install permanent system | 70A-8 |
| 8 | 90-0027A | Steps do not have handrail. Overhead pipes create a bump hazard | Install handrails and mark pipes with yellow caution tape or pad with cushioning material. | |

Appendix C – Observations and Recommendations

| Item | Building/Room # | Description of Observation | Recommendation | Photo # |
|------|--|---|--|------------------|
| 9 | 50-4097 (Breezeway between 50 and 50A) | Lower windows in breezeway are opened, yet window framing doesn't meet guardrail requirements. This condition occurs in both breezeways (between 50 & 50A and the breezeway between 50 & 50B) and on multiple floors. | Recommend further evaluation by Facilities engineering department as to building code requirements. To immediately reduce the risk, secure lower windows on each floor of each breezeway, but allow the upper windows on each floor of each breezeway to be opened for cross ventilation. This is a high priority recommendation | 50A-R-1, 50A-R-2 |
| 10 | 79 | Employee keeps a safety checklist behind the seat of the forklift and reviews the checklist daily, however no daily use written record is maintained. 1910.178(g)(7) requires examination at least daily, but does not, nor does PBU3000, require written documentation | Recommend using a daily log of inspection to verify that inspection as are being conducted | |
| 11 | 81-100 | PPE is stored in multiple locations. | Store all PPE in single, protected (clean) location. | |
| 12 | 81-100 | Box containing misc. electrical cords/plugs some of which are non-compliant. | Inspect electrical cords/plugs and dispose of non-compliant ones. | 81-R-1 |
| 13 | 78-103 (Section 3) | Exposed electrical cord on fork lift recharging plug (Exide System 3000) NOTE-48V DC Not life threatening | Cover the hazard. | 78-R-1 |
| 14 | 76-103-Boiler Rm | Vacuum Pump cart is stored in the room and oil has leaked all over the cart | Remove from boiler room. Clean up oil | |
| 15 | 70A-3377 | Telecommunications lines are lying on the floor where they are subject to damage from chairs | Mount along the wall | |
| 16 | 70A-3329 | EG-17-70A battery pack cover is constructed of wood | Evaluate the fire risk of using a combustible material such as wood in this application | 70A-10 |
| 17 | 70A- Acid Waste | Phone is locked in a box and a key is needed to access it. In case of emergency i.e.: chemical splash to the eyes, it would be difficult to summon assistance. | Install panic button or other easily accessible emergency communication tool | |

Appendix C – Observations and Recommendations

| Item | Building/Room # | Description of Observation | Recommendation | Photo # |
|------|-------------------------------------|---|---|---------|
| 18 | 70A | On rare occasion, PMT has had to walk through tank overflow spill to reach the control panel. Hazard of walking through acidic/caustic liquid. | Consider placing a walkway over potentially spilled material. For example a grate system which is acid/caustic resistant. Alternative is to relocate control panel to a safer area. | 70A-R-1 |
| 19 | 54-Outside-Custodial Storage locker | Downspout is not aligned properly. Water can collect causing along side the building | Align downspout | 54-R-2 |
| 20 | 54-002A | Unknown debris on floor at east wall, near entrance. Material has been tested and does not contain asbestos. Industrial Hygiene Report CTS SID-1862 sample 6. | Clean up debris. | |
| 21 | 54-002A | Old meat slicer which was removed after OSHA Audit due to missing guard is stored in this room. | Dispose of meat slicer or repair and fully guarded. | 54-R-1 |
| 22 | 54 | Fire Extinguisher training should be required for cafeteria personnel | Review fire extinguisher training needs. | |
| 23 | 54-122 | Sewer odor in restroom | Ensure that drain lines are periodically flushed with water. | |
| 24 | 2-130A- Acid Waste | The confined space sign in Acid Waste pit should be more visible | Place another sign on the wall or other near by visible location. | |
| 25 | 2-130A-Acid Waste | Label Safety Equipment Cabinet as to contents and remove non-safety items | Label Safety Equipment Cabinet as to contents and remove non-safety items | 2-R-1 |
| 26 | 2-130A & B70A Acid Waste Treatment | Acid Waste Spill instructions reference EHS Duty Officer (no longer exists) & lists operators no longer at LBL. The plan was dated 1995. | Review and update the plan | |
| 27 | 82 | Overhead water tank pipes are a head bump hazard going from B81 to water tank. | Demarcate overhead water pipes with yellow and black diagonal adhesive tape. | 82-R-3 |

Appendix C – Observations and Recommendations

| Item | Building/Room # | Description of Observation | Recommendation | Photo # |
|------|-------------------------|--|---|---------|
| 28 | 82 | Paint yellow line- Caution Warning- around the edge of the raised cooling tower pad. The pad is ~3' off the ground and though a railing is not required by OSHA, a warning line would be appropriate in that area. | Paint yellow line- Caution Warning- around the edge of the raised cooling tower pad. | 82-R-2 |
| 29 | 82 | Review shelf layout and prioritize so light weight items are on the top and heavy items are on the bottom | Review shelf layout and prioritize so light weight items are on the top and heavy items are on the bottom | 82-R-1 |
| 30 | 70A-3329 | WH-2-70A is no longer in use | Remove | |
| 31 | 76-133 Shop | Lid on recycled rag collection can does not fully close | Repair so that lid can completely close and vapors are kept inside | 76-17 |
| 32 | 76-105 Vacuum Pump Shop | Drum of clean rags is unlabeled | Label Containers | |
| 33 | 50B-243 | Stripe the concrete pad around the new chiller to better identify a trip hazard | Stripe the concrete pad around the new chiller to better identify a trip hazard | |
| 34 | 50B-Penthouse-Roof top | Drainage cap at NE corner is blocked. Debris can clog drain | Repair drainage cap | |
| 35 | 50-4009 | Ladder is leaning up against a steam valve | Relocate ladder. Store in a different location | |
| 36 | 50A-0135 | Post PPE Procedures for the chemical fill system | Post PPE Procedures for the chemical fill system | |
| 37 | 78-103 (Section 3) | Metal pipes extending out into aisle way is a trip/bump hazard | Evaluate safety of aisle way obstruction, guard, relocate, or cut flush. | 78-1 |

Appendix D Noteworthy Practices

| Item | Building/Room # | Description Noteworthy Practice | Photo Reference # |
|------|--|---|-------------------|
| 1 | 31-Laborers' Sheds | Laborer's equipment storage sheds and area is well organized. Equipment has designated storage racks, shelves and locations and is all neatly stowed in its location. Paved ramps have been installed where heavy equipment is stored. This facilitates the moving of equipment and can reduce material handling injuries. The Laborer Shop Supervisor and staff have done an excellent job of maintaining a neat and safe work area. | |
| 2 | 82 Rm100 | General area is well-organized, without clutter | |
| 3 | 79 | Employee has devised a new method for measuring the weight of metal sheets which is safer both from an ergonomic and material handling perspective. Following an ergonomic evaluation to the area, the heavier components have been relocated to the bottom shelves. | 79-N-1, 79-N-2 |
| 4 | 81-100 | Drum dispensers are in place and used | 81-5 |
| 5 | 78-103 (Section 3) | 4x4 wood posts slide along a metal roller track. This assists in material handling and reduces injuries. | BP-2-78 |
| 6 | BP-2-78 | Cardboard Tubes are secured with Velcro to the wall allowing for safe and efficient storage of tall materials. | BP-1-78, BP-1A-78 |
| 7 | 78 | Ergonomic redesign of Receiving Clerk workstations has been completed. | |
| 8 | 76-105 Vacuum Pump Shop | Visitor safety glasses dispenser nicely displayed for easy access. | |
| 9 | 76 234 Carpenter Shop | Hersafe Router. Excellent organization of accessories for easy access, including a copy of the owner's manual for the equipment. | |
| 10 | 54-098 Mechanical Room under Perseverance Hall | Padded machinery to prevent employees from bumping their heads. | 54-N-1 |
| 11 | 90-0027 | Hearing protection is readily available in ear plug dispensing tray; however, should be moved to Room 0027A where noise is higher. | BP-90-1 |

| Item | Building/Room # | Description Noteworthy Practice | Photo Reference # |
|------|--------------------|--|-------------------|
| 12 | 51-Riggers Trailer | Excellent organization, storage and housekeeping of rigging equipment (slings, hooks, etc..) | BP-51-1,BP-51-2 |

Appendix E Photographs



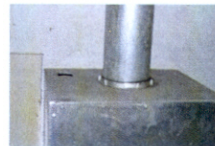
Bldg.50Rm0135-6-29-05-1



Bldg.50Rm0135-6-29-05-2



Bldg.50Rm0135-6-29-05-3



Bldg.50Rm0135-6-29-05-4



Bldg.50Rm0141-6-29-05-1



Bldg.50Rm4009-6-29-05-1



Bldg.50Rm4009-6-29-05-2



Bldg.50Rm4009-6-29-05-3



Bldg.50Rm4009-6-29-05-4



Bldg.50Rm4009-6-29-05-5



Bldg.50Rm4009-6-29-05-6



Bldg.50Rm4009-6-29-05-8



Bldg.50Rm4009-6-29-05-9



Bldg.50-Rm0125-6-29-05-3



Bldg. 50A RM5118-6-29-05-1



Bldg. 50A RM5118-6-29-05-2



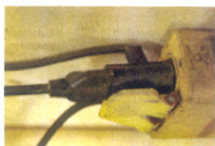
Bldg. 50B-Chiller-6-29-05-3

BP-1-78 B78 Best Practice
cardboard tubes velcro'ed..BP-1A-78 B78 Best Practice
Cardboard tubesBP-2-78 B78-Section 2 Best
Practice- roller to move he...BP-51-1 Rigger's Trailer-
Noteworthy Storage PracticeBP-51-2 Rigger's Trailer-
noteworthy practice 2BP-90-1 Room 0027
Noteworthy practice-heari.

IFA Finding Photos 037



IFA Finding Photos 089



IFA Finding Photos 147



IFA Finding Photos 168



IFA Finding Photos 176

2-1 Rm130 Liquid Spray
bottle improperly stored on.2-3 Rm129A Storage under
electrical panel2-4 Rm130A Add an
additional confined space.2-5 Rm130A-Construction
Debris left in room.2-6 Rm141 Chair blocking
electrical panel2-7 Rm143 Insufficient
electrical panel clearance2-8 Rm129 Poor
housekeeping and blocked.

Appendix E - Photographs



2-2 Rm130A Improper Storage of PPE-faceshield.



2-R-1 Rm130A Acid Waste. Label exterior of cabinet wi..



50A-1 Rm141 ARU-5-50A



50A-R-1 Breezeway



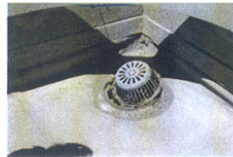
50A-R-2 Breezeway



50B-1 Roof Exposed wiring



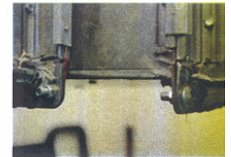
50B-2 Roof Exposed wires-cover missing



50B-Roof debris in drain cap. Recommendation



54-2 Rm098-GP7 Exposed machinery, guard needed



54-3 Rm098 Protrusion hazard- Pad



54-4 Rm098 Protrusion in Wall-Fire code violation



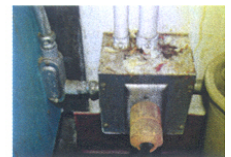
54-5 Rm107 Grill Area not cleaned



54-6 Rm107 grill area-surface not cleaned of foo..



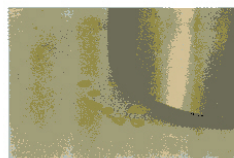
54-7 Rm107 Grill area-plates not clean



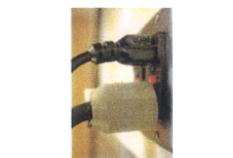
54-8 Rm108 Food debris le on electrical conduit



54-8A Rm108 Close up-Food Debris on Conduit



54-9 Rm108 Soup area-food not cleaned



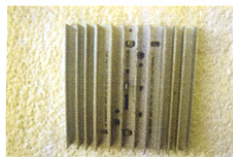
54-10 Rm108 Dirt debris on electrical cord in food servi...



54-11 Rm104 Corroded Electrical Switch on garba.



54-12 Outside kitchen. Custodial area excess stor.



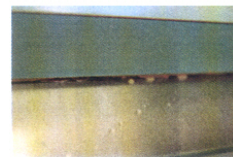
54-13 Rm002A Electrical



54-14 Rm108-cafeteria trash cans on rail



54-15 Rm104 Frayed electrical cord



54-16 Rm108 salad bar-food wedged between cou.



54-17 Rm123C Women's Bathroom-Bar of soap not.



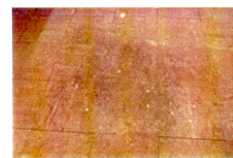
54-18 Rm123A Door to Women's Bathroom- not cl.



54-19 Rm123B women's bathroom



54-20 Rm121 Men's Bathroom Floor



54-21 Rm 121 Men's Bathroom Floor-close up



54-22 Rm107 Storage Rac



54-23 Rm108 cafeteria- dirty water used to wash floor



54-24 Rm002A Excess Storage in MechanicalElec..



54-25 Rm111 Kitchen Area, contractor cutting metal no..



54- Blocked Electrical Panel- Basement



54-N-1 Rm098 Padded machinery Noteworthy Pra

Appendix E - Photographs



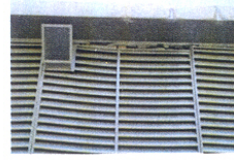
54-R-1 Rm002A Meat slicer removed during OSHA au...



54-R-2 outside kitchen door-misalignment of drainage...



70A



70A-1 Exterior to mechanical rm3329



70A-2 Louvers are not completely fastened.



70A-3 Acid Treatment-improper use of ladder



70A-4 Acid Treatment-Torn cracked PPE-rubber boots



70A-5 Acid Treatment-Torn cracked PPE-rubber boots2



70A-6 Road adjacent to Acid Treatment Tanks-Gu.



70A-7 Fill location for Acid Treatment-no label, warnin.



70A-9 FlamCabinet located under electrical panel. 3ft...



70A-10 Battery pack covered with wooden box



70A-R-1 Acid Treatment-Employees required to ent.



76-1 Rm105 Vacuum shop Unlabeled spray bottle



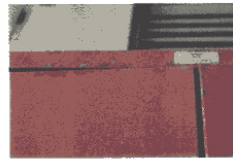
76-1A Rm 105 Vacuum Shop, Unlabeled bottle.



76-2 Motor Pool Outside High Bay Exposed battery.



76-2A Motor Pool Outside High Bay Exposed battery..



76-2B Motor Pool Outside High Bay Flam Cab



76-3 Rm103 Housekeeping issues



76-3A Rm 103 Poor Housekeeping



76-3B Rm 103 Electrical Shut Off MC clearance



76-4 Rm 133 Cylinders not in use. Remove regulator...



76-5 Rm 235 Electrical cover missing-Paint Shop



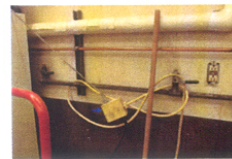
76-6 Rm 105 Vacuum Shop-Evidence of smoking near...



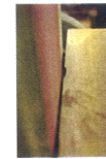
76-7 Rm 129 First Aid Supplies



76-8 Outside High Bay Frayed cord securing ladder



76-9 Rm 109 Motor Pool area, Daisy chaining



76-10 Rm 234 Gap between sander too wide



76-10A Rm 234 Chipped Belt Sander rest



76-11 Rm 224 Plumbing Weld Shop-Guard Pulley..



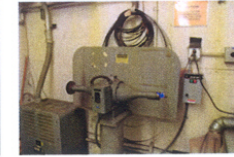
76-12 Rm129 Unsecured Gas Cylinders



76-13 Rm 133- Blocked electrical outlet



76-14 Rm 133 Make shift welding station



76-15 Rm 133 Buffer uncapped



76-16 Rm 129 Two screw missing on face plate



76-17 Rm 133 Lid on rag can will not completely close



76-19 Rm 234 Not secured to floor



76-20 Rm 234 Face Shield improperly stored



76-21 Rm 234 Drill Press shield is not used



76-22 High Bay outside Rm103. Blocked air intake.



76-23 Rm 103 Custodial supplies stored under elec.



76-24 Rm 109 Electrical Hazard- equipment plugge..



76-25 Rm 109 Unlabelled containers



76-26 Rm 133 Abrasive wheel workrest gap too large



76-27 Rm 234B Key Shop Unguarded flourescent lig.



76-28 Rm 129 4plex metal box extension cord



76-29 Rm133 Broken hard hat (PPE)



76-30 Rm224 Plumbing Weld Shop-Cylinder in stor...



78-1 Rm 101 Section 2 Metal protruding into walk..



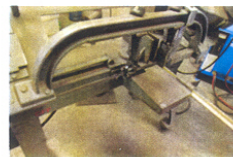
78-2 Rm 101 Section 2. Telephone wire suspende.



78-3 Rm 119 Blocked Electrical Panel



78-4 Section 2- inconsistent use of seismic restraints o...



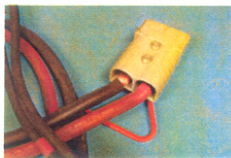
78-5 Exposed Blade-Machine



78-5 Exposed Blade-Machine Guarding



78-5A Exposed Blade Machine Guarding



78-R-1 Section 4 Battery recharger exposed conduc..



79-1 Scrap Bin inside electrical 3ft zone. Was rel..



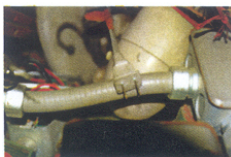
79 -Notworthy-2 Metals Rack- Improvements follo.



81-1 Broken ladder support



81-2 Fingers can come in contact with fan blades



81-3 No ground on table top fan's cord



81-4 Temporary set up-clamp holding sink, hose s..



81-4A Clamp holding sink in place



81-5 Caustic chemicals. No PPE was observed



81-6 Overhead containers boxes not seismically restr.



81-R-1 Box of electrical cords. Some are broken, r.



82-1 Unlabeled containers



82-2 Uncapped exposed battery terminals



82-2A Exposed Battery Terminals



82-4 Open electrical junction box



82-5 Broken Chain on Eye Wash Shower



82-5A Broken Chain on Eye Wash Shower



82-R-1 Heavy parts stored on upper shelves-No seis..



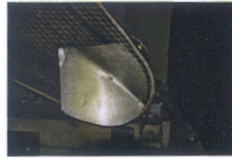
82-R-2 Recommendation paint edge of cooling tower.



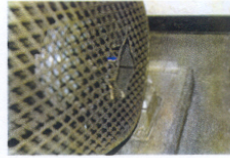
82-R-3 Overhead pipes are a bump hazard. Paint war...



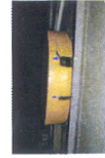
90-1 BL03 Guarding incomplete



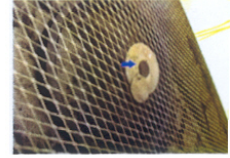
90-2 BL01 missing cover on damper motor



90-3 Guard missing



90-4 BL03 guarding incomplete



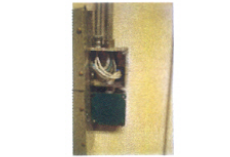
90-5 BL05 hole exposed guard left open



90-6 BL06 Guarding incomplete



90-7 BL06 Lack of Guarding



90-8 Rm0027 Electrical cover plate missing



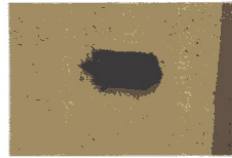
90-9 Room 0025 Wall Penetration Fire code viola.



90-10 Rm0025H hole in wal Fire code violation



90-11 Rm0027 hole in wall-fire code violation



90-12 Rm0027 penetration is a fire code violation



90-13 Rm0027 Abandoned Box



90-14 Rm0027 Air compressor hole unguarded



90-15 Rm0027A Copper Tubing is a trip hazard



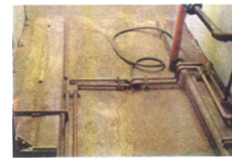
90-16 Self Closing not working



90-17 Rm 0690 Trip Hazard



90-18 Trip Hazard



90-19 Rm0027A Trip Hazard



90-BL06 20 Lack of Guarding



B2-129



B54



B70A Acid Treatment-improper storage of PPE



B70A Acid Treatment-PPE stored in box.



B79



B79 Metals Rack chemical storage



B79 Metals Rack-Blocked electrical panel-area was c.



B79 Metals Rack-Ergo improvements made for sc.



B79 Metals Rack-Improvements-Noteworthy



B81-Improper storage c dust mask. Verify correc

Appendix E - Photographs



Bldg50A0141ARU-5-50A-6-29-05-3



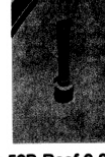
Bldg01441-ARU-5-50A-6-29-05-1



Bldg.50B Chiller-empty openings-electrical hazard



Bldg.50B-Chiller-Exposed wires in wall



Bldg.50B-Roof-6-29-05-5



Bldg.50B-RoofExposed terminals



BLdg.50Rm0125-6-29-05-1



Bldg.50Rm0125-6-29-05-2



Bldg.50Rm0125-6-29-05-4



Bldg.50Rm0125-6-29-05-4



Bldg.50Rm0125-6-29-05-6



Bldg.50Rm0125-6-29-05-7